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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,647	01/22/2002	Ravi Prasad	10015567-1	9854

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
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EXAMINER

HANDAL, KAITI V

ART UNIT	PAPER NUMBER
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1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/056,647

Applicant(s)

PRASAD ET AL.

Examiner

Kaity Handal

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 57 is/are allowed.
- 6) ☒ Claim(s) 1-8, 53, 12-14, 54, 18-21, 22-23, 25-30, 55-56, 58-62 is/are rejected.
- 7) ☒ Claim(s) 9, 15 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8, 12-14, 18-21, 53 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Hockaday et al. (2001/0045364).

With respect to claims 1-9, 12-15, 18-21, 53 and 54, Hockaday et al., in Fig. 9, discloses a fuel reservoir (7, 39), a reaction chamber (122), an open region (111) defined as a tubular member, and a passive flow resisting structure within the open region (110, 112), wherein the fuel containing substance within the fuel reservoir comprises sodium borohydride (abstract), wherein the reaction chamber comprises an inlet operably connected to the fuel reservoir and a gas outlet (Fig. 9). The cartridge further comprising a byproduct reservoir (7, 39) including a liquid inlet (Fig. 9) and a substantially gas permeable/liquid impermeable structure (106) separating the reaction chamber liquid outlet from the reaction chamber gas outlet. Wherein the structure creates capillary forces that resist fluid flow. The reaction chamber further comprising catalyst (Fig. 9).

Hockaday et al., in Fig. 3, further discloses a fuel reservoir (7, 39), a reaction chamber (Fig. 3) including a catalyst, wherein the fuel containing substance within the fuel reservoir comprises sodium borohydride (abstract), wherein the reaction chamber comprises an inlet operably connected to the fuel reservoir and a gas outlet (Fig. 3). The cartridge further comprising a byproduct reservoir (7, 39) including a liquid inlet operably connected to a liquid outlet of the reaction chamber (Fig. 3). The reaction chamber comprises an external housing (38) and a substantially gas permeable/liquid impermeable structure (31-32) forming a structure in which catalyst is at least partially located, wherein a space (36) is defined between the inner surface of the reaction chamber external housing and the outer surface of the enclosed substantially gas permeable/liquid impermeable structure the is in communication with the reaction chamber gas outlet (37).

3. Claims 22, 23, 25-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Muradov (6,653,005).

With respect to claims 22, 23, and 28, Muradov discloses an apparatus comprising: a reaction chamber (10) including a catalyst (13), an inlet for fuel (16); a gas outlet (17); means (15) for letting liquid out of the reaction chamber (10) not connected to the fuel source and a substantially gas permeable/liquid impermeable hydrophobic membrane structure (14) separating the inlet (16) from the gas outlet (17) (see figure 1).

Art Unit: 1764

While Muradov does not explicitly illustrate or disclose a fuel "reservoir" some form of tank, canister, or other fuel holding device would be inherent in the system in order to provide fuel to the fuel inlet (16).

With regard to claim 25, though no "reservoir" is explicitly illustrated or disclosed in connection with outlet (15), having some form of tank, canister, or other holding device would be inherent in the system in order to collect feed exiting outlet (15).

With respect to claim 26, Muradov further discloses wherein the reaction chamber has external housing (10) and the gas permeable/liquid impermeable structure (14) is an enclosed structure (see figure 1), an inlet (16) to the fuel, and a liquid outlet (15).

With respect to claim 27, Muradov further illustrates in figure 1 wherein the gas outlet (17) is in communication with the space formed between the housing (10) and the gas permeable/liquid impermeable structure (14).

With respect to claims 29 and 30, Muradov further discloses wherein the catalyst can be a plurality of porous elements coated with catalyst material, and that the catalyst can be a transition metal (col. 7, lines 48-56).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 55, 56, and 58-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muradov (6,653,005) in view of Adlhart (US 4,261,956).

With respect to claims 55, 56, and 60, Muradov discloses an apparatus (figure 1) comprising: a cartridge housing (10), a reaction chamber (12) including an inlet for fuel (16) and a gas outlet (17); and an enclosed substantially gas permeable/liquid impermeable hydrophobic membrane structure (14) with its interior connected to the fuel inlet (16) and wherein the gas outlet (17) is in communication with the space formed between the housing (10) and the gas permeable/liquid impermeable structure (14); and catalyst (13) located within the enclosure formed by membrane (14); and a fuel reservoir (18).

Muradov does not show wherein the gas permeable/liquid impermeable is located within the reaction chamber (12) (or as illustrated in (figure 9) of the instant application where the membrane is on the peripheral of/surrounding the catalyst). Muradov also fails to teach wherein his fuel "reservoir" (18) is located within the cartridge housing and outside the reaction chamber. Adlhart teaches a cartridge for gas generation (fig. 1) comprised of a cartridge housing (10), a reaction chamber (20) including an inlet for fuel (28) and a gas outlet (30); and an enclosed substantially gas permeable/liquid permeable membrane structure (fig. 2, 44) within the reaction chamber (20) (or as illustrated in (figure 9) of the instant application where the membrane (44) is on the peripheral of/surrounding the catalyst (42)); and a fuel "reservoir" (14) located within the cartridge housing (10) and outside the

reaction chamber (20) in order to better handle storage of fuels due to their sensitivity to moisture (col. 1, lines 29-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the gas permeable/liquid impermeable is located within the reaction chamber (12) (or as illustrated in (figure 9) of the instant application where the membrane is on the peripheral of/surrounding the catalyst) and to have the fuel "reservoir" of Muradov be located within the cartridge housing and outside the reaction chamber, as taught by Adlhart, in order to better handle storage of fuels due to their sensitivity to moisture.

With regard to claims 58 and 59, though no "reservoir" is explicitly illustrated or disclosed in connection with outlet (15), having some form of tank, canister, or other holding device would be inherent in the system in order to collect feed exiting outlet (15). As applied, the inherent reservoirs would be separate structural elements.

With respect to claims 61 and 62, Muradov further discloses wherein the catalyst can be a plurality of porous elements coated with catalyst material, and that the catalyst can be a transition metal (col. 7, lines 48-56).

Allowable Subject Matter

6. Claim 57 is allowed for the same reasons indicated in the previous office action.
7. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims. Reasons for indicating allowable subject matter are noted in the previous office action.

8. Claims 9 and 15 are objected to as being dependent upon a rejected base claims 1 and 12 respectively, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- a. The following is a statement of reasons for the indication of allowable subject matter: having a fuel cartridge as claimed in claims 1 and 12 having a passive structure within the open region adapted to resist fluid from the fuel reservoir to the reaction chamber such that the passive structure comprises a porous structure.

Response to Arguments

Prior Art Rejection

9. Applicant's arguments filed 12/21/2006 have been fully considered but they are not persuasive.

10. Applicant's arguments concerning claims 1-9 and 53; 12-15 and 54; 18-21

Applicant argues that there is no teaching in Hockaday to motivate one skilled in the art to add the check valve of Matkovich to the valve (110) of Hockaday to provide a passive porous structure adapted to resist the fluid flow from the fuel reservoir to the reaction chamber. The examiner agrees and has amended her rejection as presented above where the examiner takes the position that the valve (110) of Hockaday is a passive structure and is adapted to resist the fluid flow from the fuel

Art Unit: 1764

reservoir to the reaction chamber. If the limitation "passive" has a specific meaning other than what has been claimed, then the applicant is encouraged to include such limitation in order to overcome the prior art of record.

11. Arguments concerning claims 22-23 and 25-30 that :

"inlet 15 cannot correspond to the claimed "means ... for letting liquid out of the reaction chamber" because inlet 15 does not perform the function of letting liquid out of the hydrogen generator 10. To the contrary, the Muradov '005 patent specifically indicates that inlet 15 performs the function of letting solids out of the hydrogen generator"

Examiner respectfully disagrees. Though Muradov '005 describes that inlet 15 performs the function of letting solids out of the hydrogen generator, inlet 15 can perform as an outlet for letting liquid out of the hydrogen generator as well.

12. Applicant's arguments concerning claims 55-56, and 58-62, the examiner agrees with applicant's arguments and new grounds of rejection are presented above as necessitated by amendment.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1764

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


KH

3/2/2007

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